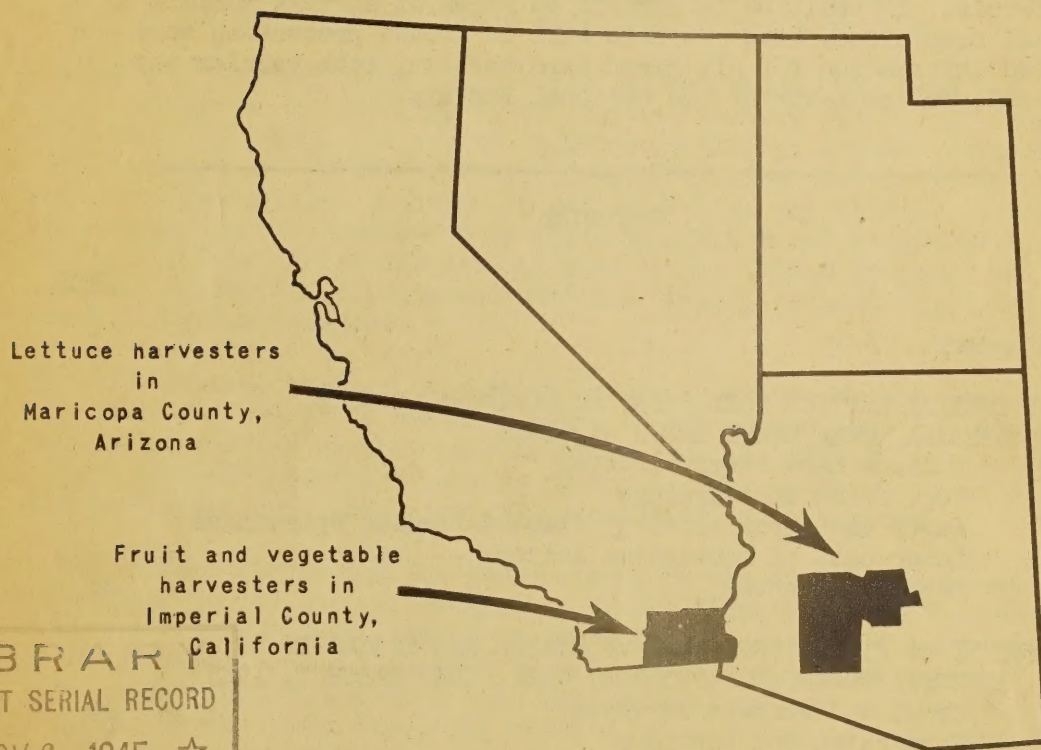


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UNITED STATES DEPARTMENT OF AGRICULTURE  
Bureau of Agricultural Economics

A  
WAGES AND WAGE RATES OF SEASONAL FARM WORKERS IN  
MARICOPA COUNTY, ARIZONA AND IMPERIAL COUNTY, CALIFORNIA,  
FEBRUARY - MARCH, 1945



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U. S. DEPARTMENT OF AGRICULTURE

Surveys of Wages and Wage Rates in Agriculture, Report Number 2

Washington, D.C.  
June 1945



## PREFATORY NOTE

This is the second of a series of reports to be issued by the Bureau of Agricultural Economics, presenting results secured from new enumerative sample surveys of farm wages and farm wage rates. The surveys were planned under the general direction of Conrad Taeuber, Office of the Chief, by a Bureau-wide Committee, with Louis J. Lucoff as Chairman. Members of the Wage Project Committee are as follows: Glen T. Barton, Emerson M. Brooks, Charles F. Cannell, Charles A. Gibbons, Margaret Jarman Hagood, Roger F. Hale, Earl E. Houseman, Barbara B. Reagan. The State Agricultural Statisticians cooperated in conducting the field operations of the surveys.

The surveys include collection of information on wages and wage rates of seasonal farm workers in special crop areas of various States. This report presents the information obtained on seasonal farm workers in special crop areas of Maricopa County, Arizona and Imperial County, California. In addition to reports on wages of harvest workers in special crop areas, other reports will be issued presenting wage and related information for all hired farm workers, both regular and seasonal, on the basis of the national surveys.

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Section on Maricopa County, Arizona, prepared by Barbara B. Reagan; section on Imperial County, California, prepared by William H. Metzler and Barbara B. Reagan. Special acknowledgement is made to Evan V. Jones and George Scott for directing in Arizona and California, respectively, the field work in these wage surveys.



WAGES AND WAGE RATES OF SEASONAL FARM WORKERS IN MARICOPA  
COUNTY, ARIZONA AND IMPERIAL COUNTY, CALIFORNIA, FEBRUARY-  
MARCH, 1945

SUMMARY

Wide variations in the hourly earnings of fruit and vegetable harvesters of different crops in Imperial County, California were shown in special surveys made early this year by the Bureau of Agricultural Economics. Workers cutting and packing dry-pack lettuce in the field earned an average of \$1.60 an hour, while cabbage harvesters throwing the cabbage onto trailers averaged 55 cents an hour. For the other crops surveyed in Imperial Valley, the average hourly earnings of harvesters were between these two extremes. Citrus fruit pickers averaged 61 cents an hour. The pea pickers surveyed had average earnings of 64 cents an hour, and workers bunching and tying carrots averaged 75 cents an hour. Workers harvesting lettuce to be ice-packed earned an average of 65 cents an hour. In a similar survey made in Maricopa County, Arizona workers harvesting ice-pack lettuce had almost the same average hourly earnings, 67 cents an hour.

The surveys of the six crops in Imperial Valley, California obtained information on wage rates and earnings of 777 harvest workers during the week of February 25 to March 3, 1945. The survey in Maricopa County, Arizona covered the wage rates and earnings of 778 lettuce harvesters during the week ended March 31, 1945. These surveys were timed to cover an active week of harvesting. Imperial Valley is well known for its production of irrigated fruits and vegetables; it produces over half of the winter carrots and peas in the United States. In addition, Imperial Valley, California and Maricopa County, Arizona are the major producing areas of winter lettuce.

In Maricopa County, workers harvesting ice-pack lettuce by the trailer method were paid an average of 76 cents an hour, 10 cents more than the average rate paid workers harvesting by the crate method. From the grower standpoint, the higher rate paid workers harvesting lettuce by the trailer method is more than offset by the much lower unit labor cost for harvesting by this method.

When the workers harvesting ice-pack lettuce by the crate method were classified according to the size of operations of the farms on which they were employed, during the survey week, the larger the farms the higher the average hourly rate paid. Farms hiring less than 50 workers paid an average rate of 61 cents an hour, while farms hiring more than 100 workers paid an average rate of 67 cents an hour. On the other hand, the average hours worked per week and the average weekly earnings decreased from the smaller to the larger farms.

In Imperial Valley, California, the earnings within each crop varied with the mode of payment and the type of worker. Workers paid by piece rates to harvest lettuce and cabbage had the highest hourly, daily, and weekly earnings. Among the male workers for the same crop and type of operation, Filipino workers averaged higher hourly earnings than the Spanish-American or Mexican national workers did, and Spanish-American workers had higher average hourly earnings than the Mexican nationals.



1. SURVEY OF LETTUCE HARVESTERS IN MARICOPA COUNTY, ARIZONA, WEEK ENDED  
MARCH 31, 1945

Lettuce Harvesters Surveyed

The survey of wage rates paid workers harvesting lettuce in Maricopa County, Arizona covered 778 workers employed by a sample of 11 grower-shippers. All of the harvest workers hired by each of these grower-shippers during the survey week were included in the study. All of the lettuce crop in Maricopa County is grown on irrigated land in the Salt River Valley, and most of the crop is grown within 25 miles of Phoenix. This is the major lettuce producing area in Arizona. In 1944, about three-fourths of the lettuce acreage in Arizona was in Maricopa County and Arizona had over 40 percent of the winter commercial lettuce acreage in the United States. At the time of the survey the grower-shippers sampled in Maricopa County each had planted or had contracted for harvesting from 180 to 525 acres of lettuce for 1945. During the survey week of March 24-31, 1945, each grower-shipper surveyed harvested from 3,500 to 25,000 crates of lettuce, and each employed from 35 to 151 workers for harvest operations.

In Maricopa County, there are 46 grower-shippers who grow the lettuce they ship and ship all they grow. In the spring of 1945 they produced about 90 percent of the lettuce in the county. The remaining lettuce was raised by "independents" who do not ship their own production, but who either harvest the crop and sell it locally, or sell the crop unharvested to a grower-shipper. Since most of the "independently" grown lettuce is harvested by grower-shipper crews, which were sampled in this survey, the harvesting operations of "independent" growers have little effect on the average wage rate paid in the county.

In Maricopa County, there are two principal methods of harvesting lettuce used by grower-shippers. The trailer method involves cutting the lettuce and pitching it directly into a large open-topped trailer as it is pulled slowly through the field, and then hauling the lettuce to the packing shed. The crate method involves cutting and packing the lettuce in small crates in the field, loading the crates on a truck, and hauling to the packing shed. The field crates are open boxes which are used over and over again. With both methods, after the lettuce is harvested and hauled to the packing shed, it is trimmed, graded and ice-packed for shipment. All of the lettuce handled by grower-shippers in the sample during the survey week was ice-packed.

There are two other methods of harvesting lettuce in the county, neither of which is widely used. One is the basket method, which is a relatively new method. It is very similar to the trailer method, except that the lettuce is pitched into large baskets on a specially built truck instead of into a trailer. The truck is unusually long, and is narrow enough to straddle only one lettuce row. At the packing shed, special motors and conveyor tracks are required to move the baskets from the truck to the sorting and trimming table. The ice-pack operations in the packing shed are the same as for the crate or trailer method. The main reason that the basket method is not more extensively used is that the



special equipment required has not been available during the war. The other method of harvesting lettuce is to trim and dry-pack the lettuce in crates in the field for shipment. No packing-shed operations are required. In Maricopa only a small quantity of the lettuce is packed by this method. The little that is dry-packed is by small operators who sell locally or within a small enough area that the lettuce can be shipped without being packed in ice.

In this survey, the two primary methods of harvesting lettuce were covered, with "harvesting lettuce" defined as any operation in handling the lettuce from the time the lettuce heads are cut to the time the lettuce is on the truck leaving the field. In the trailer method of harvesting lettuce, the operations involved are cutting and pitching, and in the crate method the operations involved are cutting, packing in crates in the field, and loading the crates on the truck. The work of irrigating, driving trucks, or packing-shed operations were excluded from this study.

Workers harvesting lettuce in Maricopa County worked in crews of 15 to 100 workers. Half of the surveyed grower-shippers reported some women workers. More than three-fourths of the lettuce harvesters were Spanish-Americans, and about a sixth were Mexican nationals, imported by the War Food Administration. Most of the Mexican nationals surveyed were hired by the medium-size farms which hired from 50 to 100 workers during the survey week. In the survey there were only a few other workers who were white local residents. A fifth of the workers were women, all of whom were Spanish-Americans hired to pack lettuce in field crates in the crate method of harvesting. Over half of the women surveyed were hired on the larger farms which hired over 100 workers during the survey week.

Table 1.-Distribution of lettuce harvesters by type of worker and by number of harvest workers on farm, Maricopa County, Arizona, week ended March 31, 1945

Type of worker	Workers on farms with:				
	Number of workers in farms :				
	All farms : 1 - 49 : 50 - 99 : 100 - 151				
	Number	Percent	Percent	Percent	Percent
All workers	778	100	20	30	50
Spanish-Americans	611	79	16	17	46
Male	457	59	14	11	34
Female	154	20	2	6	12
Mexican nationals					
male	126	16	-	13	3
Other whites -					
male	41	5	4	-	1



# Wage Rates and Earnings

Wage rates.—All of the workers harvesting lettuce in Maricopa County were paid by the hour. Workers harvesting lettuce by the trailer method were paid an average of 76 cents an hour, while those harvesting by the crate method were paid an average of 66 cents an hour. No specific ceiling rates for harvesting lettuce in Arizona have been set by the WFA.

For the operations involved in the crate method, loaders averaged the highest pay rate—74 cents an hour, 4 cents more than cutters, and 10 cents more than packers. The lower rate paid packers is not because half of the packers were women, for there is practically no difference in the rate paid men and women. Furthermore, the hours worked per day and per week by women and the cash wages earned per week by women shown below, were not significantly different from hours worked and wages earned by men.

The lowest average rate per hour for the operations in the crate method was 62 cents, paid to those workers performing two combined harvesting operations such as cut and pack or pack and load. In one crew in the survey, all workers were paid the same rate per hour, and they took turns cutting, packing, and loading to break the monotony. For all lettuce harvesters, regardless of method used or type of operation performed, the Spanish-Americans were paid the highest average rate per hour, the Mexican nationals the next highest, and the other white workers the lowest. In the trailer method of harvesting the average wage rate paid Spanish-Americans was little different from that paid Mexican nationals. However, in the crate method, the Mexican nationals were paid slightly less than the Spanish-Americans for cutting, for packing and for loading. The few other white workers surveyed were paid less than the Mexican nationals for cutting and for two operations, but they were paid more than the Mexican nationals or the Spanish-Americans for packing. Perquisites received by the Mexican nationals may offset the reported wage rate differences. Perquisite data are not available by type of worker in this study. However, most of the Mexican nationals surveyed were employed on farms with 50 to 100 workers, and a larger proportion of the workers received some form of perquisites on these farms than on the other size farms.

Table 2.—Average wage rates, time worked, and cash wages earned by Spanish-American workers packing lettuce in the crate harvest method, by sex, Maricopa County, Arizona, week ended March 31, 1945

Sex	: Number :		Time worked			: Cash wages earned	
	: of :		Rate : on reporting farm			: on reporting farm	
	: workers :	per	: Hours	: Days	: Hours	:	:
	: in :	hour	: per	: per	: per	: Daily	: Weekly
	: survey :	:	: day	: week	: week	:	:
	<u>Number</u>	<u>Dollars</u>	<u>Number</u>	<u>Number</u>	<u>Number</u>	<u>Dollars</u>	<u>Dollars</u>
Males	169	.64	7.1	5.0	36	4.50	22.60
Females	154	.65	7.0	4.9	35	4.50	22.50



Table 3.-Average wage rates, time worked, and cash wages earned by workers harvesting lettuce, Maricopa County, Arizona, week ended March 31, 1945

Harvest method used, type of operation and type of worker	: Number :	: Time worked on			: Cash wages earned		
	: of :	: Rate :	: reporting farm		: on reporting farm		
	: workers :	: per :	: Hours :	: Days :	: Hours :	: Daily :	: Weekly :
	: in :	: hour :	: per :	: per :	: per :	: Daily :	: Weekly :
	: survey :	: day :	: week :	: week :	: week :		
	No.	Dols.	No.	No.	No.	Dols.	Dols.
All methods							
All operations	778	.67	7.2	5.4	38	4.80	25.90
Spanish-American	611	.69	7.2	5.2	37	5.00	25.70
Mexican national	126	.65	6.8	6.0	41	4.40	26.30
Other white	41	.53	7.6	6.7	51	4.00	26.60
Trailer method							
Cut and pitch	136	.76	6.6	5.6	37	5.00	28.10
Spanish-American	115	.76	6.6	5.4	35	5.00	26.80
Mexican national	21	.75	6.8	7.0	48	5.00	35.80
Other white	-	-	-	-	-	-	-
Crate method							
All operations	642	.66	7.3	5.3	39	4.80	25.40
Spanish-American	496	.68	7.4	5.1	38	5.00	25.50
Mexican national	105	.62	6.8	5.8	39	4.20	24.40
Other white	41	.53	7.6	6.7	51	4.00	26.60
Cut	144	.70	7.5	5.6	42	5.20	29.30
Spanish-American	106	.74	7.4	5.5	41	5.50	30.40
Mexican national	25	.70	5.7	5.3	30	4.00	21.20
Other white	13	.50	10.1	7.0	71	5.10	35.50
Pack	341	.64	6.9	5.0	35	4.50	22.30
Spanish-American	323	.64	7.1	5.0	35	4.50	22.60
Mexican national	11	.60	3.5	5.6	20	2.10	11.90
Other white	7	.70	7.5	5.0	38	5.30	26.40
Load	36	.74	7.8	5.2	40	5.70	29.80
Spanish-American	29	.74	9.0	5.0	45	6.70	33.60
Mexican national	7	.70	3.3	6.0	20	2.30	14.00
Other white	-	-	-	-	-	-	-
Two operations	121	.62	7.8	5.9	45	4.80	28.10
Spanish-American	38	.72	8.5	5.0	42	6.10	30.40
Mexican national	62	.60	8.1	6.0	48	4.80	29.10
Other white	21	.50	6.0	7.0	42	3.00	21.10



Time worked.--These weekly figures relate only to time worked and wages earned by the worker on the reporting farm. However, they approximate the total weekly earnings of the workers, since the average days worked during the week did not fall below 5 days for any type of operation or type of worker, and the average for all workers was  $5\frac{1}{2}$  days a week, with a little over 7 hours worked per day.

The hours worked during the week by workers harvesting lettuce by the trailer method were about the same as the hours worked by those using the crate method. Workers cutting and pitching into a trailer worked a little shorter day, but they worked a third of a day more a week than workers harvesting by the crate method.

Of the types of operations involved in the crate method, packers worked only a 35-hour week, while cutters averaged a 42-hour week, and those performing two combined operations averaged a 45-hour week. Packers worked nearly 7 hours a day, 5 days a week, which was the shortest average time worked for any operation. Loaders and those performing two operations put in the longest day, just under 8 hours. Workers doing two operations worked the most days per week. This coupled with their comparatively long day, accounts for their working the longest hours per week.

In the trailer method, Mexican nationals worked the same length day as Spanish-Americans, but worked 7 days a week; while the Spanish-Americans worked  $5\frac{1}{2}$  days a week. Therefore, Mexican nationals worked an average of 13 hours more during the week than Spanish-Americans.

Among workers using the crate method, there was little difference in the hours per week worked by the Spanish-Americans and the Mexican nationals; each worked about a 39-hour week. The other white workers in the survey worked only slightly longer hours per day but more days during the week than the Spanish-American and Mexican national workers, so that the other white workers averaged the longest week--51 hours.

Cash wages earned.--The average worker harvesting lettuce by the trailer method had slightly higher daily earnings than the average worker harvesting by the crate method. The trailer worker averaged \$28.10 a week, nearly \$3.00 a week more than workers harvesting by the crate method. This is due to the higher rate per hour received by trailer workers, as the crate harvesters worked a few hours more during the week.

Of the individual types of operations involved in the crate method, loaders and cutters had the highest daily and weekly earnings; each group averaged over \$29.00 a week. This is because they received the highest wage rate per hour and worked among the most hours per week. Packers had the lowest daily and weekly earnings for any operation, even though they did not have the lowest wage rate, since they worked the fewest hours per day and per week.

Mexican national workers harvesting lettuce by the trailer method had higher weekly earnings than Spanish-Americans doing the same work. The wage rate was nearly the same, but Mexican nationals worked longer hours during the week. However, in the crate method as a whole, the Mexican nationals averaged weekly earnings of \$24.00, which were lower than the weekly earnings of either



the Spanish-Americans or the other white workers. Mexican nationals' weekly earnings were lower than the other white workers' weekly earnings, even though the other white workers were paid at a much lower rate per hour, because the other white workers worked 12 hours more during the week than the Mexican nationals.

When the types of workers are compared for all types of operations and methods, the weekly wages earned by the average Spanish-Americans are slightly lower than the average earnings of either the Mexican nationals or the other white workers. Although the difference is slight, it is in a direction opposite to that for the hourly rates. The average Spanish-Americans were paid a higher rate per hour than the other two types of workers and made the most per day, but since they worked only 5 days a week while the average Mexican nationals worked 6 days and the other white workers harvested lettuce over  $6\frac{1}{2}$  days a week, the Spanish-Americans had weekly earnings which were slightly lower than those of the other two types of workers.

#### WAGES AND PERQUISITES RECEIVED BY SIZE-OF-FARMING OPERATIONS

Wage rates and earnings.--When the lettuce harvesters are classified according to the size of operation of the farms on which they are employed, during the survey week, there is no difference in the average rate paid per hour for all operations combined, but the hours worked per week and the cash wages earned during the week decrease as the size of operations get larger. When the workers are further classified according to the harvest method used, the wage rate for the crate method is higher on farms hiring more workers. On these same farms, fewer hours were worked per week harvesting lettuce on the farms hiring more workers. Therefore, the weekly cash wages earned decrease from \$30.00 a week on farms with less than 50 workers to a little over \$24.00 a week on farms with over 100 workers harvesting lettuce by the crate method.

With the trailer method, from the smaller to the middle-size farms, there is little difference in the wage rate paid workers cutting and pitching, but the hours worked per week increased, so that the weekly cash wages earned increased from \$27.00 on farms hiring less than 50 workers to nearly \$30.00 a week on farms hiring from 50 to 100 workers. None of the farms surveyed with over a 100 workers used the trailer method of harvesting.

Perquisites received.--In addition to cash wages paid, many workers were furnished transportation, housing, fuel, water, electricity, or other services by their employers. Of the grower-shippers surveyed, two did not furnish any perquisites to their workers. Over half of all workers surveyed received transportation to and from the field in addition to cash wages. The farms with fields far from town were more likely to furnish transportation than those close to town. Likewise, the larger the farm, in terms of numbers of harvest workers hired, the more likely it was to furnish transportation. More than two-thirds of the workers on farms hiring more than 100 workers received transportation, while only a third of the workers on farms hiring under 50 workers received transportation.



Table 4.-Average wage rates, time worked, and cash wages earned by workers harvesting lettuce by number of harvest workers on farms, by harvest method used, Maricopa County, Arizona, week ended March 31, 1945

	: Number :		: Time worked on			: Cash wages earned	
Number of harvest workers:	of	: Rate :	: reporting farm			: on reporting farm	
and harvest method used	: workers:	per	Hours	Days	Hours:	:	:
	: in	: hour :	per	per	per	: Daily :	Weekly
	: survey:	:	day	week	week	:	:
	<u>Number</u>	<u>Dollars</u>	<u>Number</u>	<u>Number</u>	<u>Number</u>	<u>Dollars</u>	<u>Dollars</u>
All farms							
All methods	778	.67	7.2	5.4	38	4.80	25.90
Trailer method	136	.76	6.6	5.6	37	5.00	28.10
Crate method	642	.66	7.3	5.3	39	4.80	25.40
Farms with 1-49 workers							
All methods	163	.67	7.2	5.9	42	4.90	28.50
Trailer method	79	.76	7.6	4.7	35	5.80	26.90
Crate method	84	.61	7.0	7.0	49	4.30	30.00
Farms with 50-99 workers							
All methods	232	.67	7.3	5.5	40	4.90	26.80
Trailer method	57	.75	5.7	7.0	40	4.30	29.90
Crate method	175	.65	8.0	5.0	40	5.10	25.80
Farms with 100-151 workers							
Crate method	383	.67	7.0	5.1	36	4.70	24.20



None of the grower-shippers surveyed furnished meals to workers during the week. However, a fourth of the workers received housing on lodging and an eighth received wood, water, and lights, in addition to cash wages. A larger proportion of the workers received some form of perquisite on farms hiring from 50 to 100 workers than on either the larger or the smaller farms; nearly three-fourths of the workers on the medium-sized farms received housing or lodging and nearly half received transportation. Many of the workers received two or more kinds of perquisites, but at least a fourth of all workers surveyed did not receive any.

Table 5.--Perquisites received by workers harvesting lettuce, by number of harvest workers on farms, Maricopa County, Arizona, week ended March 31, 1945

Number of harvest workers	Number	Workers receiving: 1/			
	of				
	workers				
	in	Transportation:	Housing :	Wood, water	
	survey		or	and	
			lodging :	lights.	
	Number	Percent	Percent	Percent	
All farms surveyed	778	55	24	12	
Farms with 1-49 workers	163	34	-	-	
Farms with 50-99 workers	232	44	72	34	
Farms with 100-151 workers	383	71	5	5	

1/ A worker may receive two or more perquisites.

#### Labor Cost of Harvesting Lettuce

The labor cost of harvesting lettuce was much less by the trailer method than by the crate method. The labor cost was 10 cents a crate by the trailer method and 23 cents a crate by the crate method. Thus the grower-shipper could afford to pay workers cutting and pitching the lettuce onto a trailer an average of 76 cents an hour, while workers harvesting by the crate method were paid only 66 cents an hour. In terms of the time required to harvest a crate of lettuce, the crate method took more than twice as long as the trailer method. A crate of lettuce could be harvested by the trailer method in an average of 8½ minutes; while the crate method averaged 21 minutes a crate. During the survey week, nearly 50 crates a day per worker were harvested by the trailer method, but only 21 crates a day per worker were harvested by the crate method.



The comparative speed of the trailer and crate harvesting methods is roughly shown by the average number of harvesters employed by the grower-shippers during the survey week. On the average, the operator using the trailer method harvested 12,400 crates with 45 workers during the week. On the other hand, the operators using the crate method averaged 8,900 crates harvested with 80 workers during the week. Furthermore, the organization of the harvesting operations was such that by using the trailer method, 40 workers could harvest 10,000 crates of lettuce a week, but it would take 90 workers using the crate method to harvest 10,000 crates of lettuce.

The low labor cost per crate of lettuce harvested by the trailer method is partially offset by the fact that a trailer outfit costs the operator from \$10,000 to \$12,000. However, this can soon be paid for from the saving made in the harvesting labor bill on farms with large lettuce acreage. Except for the initial purchase of equipment, the costs other than the actual harvest operations seem to be a little cheaper in the trailer method. For example, the field costs of trucks and truck drivers is slightly less in the trailer method than in the crate method. The operations at the packing shed are very similar for the two harvest methods except that the automatic dumping equipment used in the trailer method is a little cheaper than the manual or mechanical methods of unloading crates. Furthermore, the lettuce which is pitched into trailers is not damaged. Therefore, the primary difference in the labor cost of harvesting lettuce by the trailer method and by the crate method and preparing the lettuce for market seems to be in the harvesting operations, the costs of which are shown in this study.

During the week ended March 31, 1945, the grower-shippers surveyed harvested a total of over 100,000 crates of lettuce. Only one-third of the lettuce was harvested by the trailer method and two-thirds by the crate method. When this survey was made, only 2 or 3 of the grower-shippers in Maricopa County were using the basket method of harvesting lettuce, and none of them were drawn in the sample for this study. Although costs involved have not been covered in this survey, the basket method is recognized as offering even more savings than the trailer method. When equipment is again available after the war the comparative advantage of the trailer method or the basket method will doubtless lead to the increased use of these methods in spite of the capital investment required.

Table 6.-Average labor cost <sup>1/</sup> of harvesting lettuce in Maricopa County, Arizona, week ended March 31, 1945

Method of harvesting	: Average:Average Number		Labor	: Man-	: Number
	: number :of crates		: cost	: hours	: of
	: of :harvested per:		per	: per	: crates
	:workers :farm during		: crate	: crate	: per
	:per farm: week		harvested:	harvested:	man-day 2/
	<u>Number</u>	<u>Number</u>	<u>Cents</u>	<u>Number</u>	<u>Number</u>
All methods	71	9,850	19	.28	26
Trailer method	45	12,390	10	.14	48
Crate method	80	8,900	23	.35	21

<sup>1/</sup> Labor cost estimates shown here include only cutting and pitching in the trailer method and cutting, packing and loading in the crate method; the estimates exclude labor costs for truck driving and for packing shed operations, which do not differ importantly for the two methods.

<sup>2/</sup> Man-days average 7.2 hours for all methods, 6.6 hours for trailer method and 7.3 for crate method.



### Method of Survey

The survey of lettuce harvesters in Maricopa County covered harvest workers employed by shipper-growers in the Salt River Valley, which is the lettuce producing area of the county. There were 46 grower-shippers of lettuce in the area in 1945. For sampling purposes, all grower-shippers were divided into three groups according to number of acres of lettuce operated. The growers in each group were arranged alphabetically and by drawing numbers 6 operators were selected from 24 grower-shippers in the small-farm group, 3 from the 13 in the medium-size farm group, and 2 from the 9 in the large-farm group. No grower-shipper refused to give the information. All lettuce harvesters working for the selected grower-shipper were covered in the survey.

Since grower-shippers do not ordinarily keep records detailed enough to give all the desired information, blanks were given to the foreman or others in charge at the beginning of the week. The information was then recorded, day by day, during the survey week. The enumerator was in contact with the operator throughout the survey, checking with him to see that the forms were completely and accurately filled out.



2. SURVEY OF CITRUS FRUIT AND VEGETABLES HARVESTERS IN IMPERIAL COUNTY, CALIFORNIA  
WEEK ENDED MARCH 3, 1945

Crops and Workers Surveyed

In Imperial County, California, 777 workers harvesting cabbage, carrots, citrus fruit, lettuce and peas were surveyed during the week ended March 3, 1945. The workers were sampled from field crews totaling 2,650 workers hired by 21 grower-shippers, who in turn were a sample of all the active shippers and grower-shippers in the county. During the survey week there were about 6,400 workers in the county harvesting the selected crops for 64 shippers and grower-shippers of vegetables and citrus fruit in Imperial. <sup>1/</sup> Of the 64 shippers and grower-shippers in the county, 8 were not harvesting the selected crops during the week. Of the grower-shippers surveyed, about a third were harvesting two of the selected crops, and one was harvesting three of the selected crops.

Imperial Valley is in the western part of Imperial County, and is practically the only inhabited part of the county. In 1944, its lettuce crop was valued at over 10 million dollars, its carrot crop was valued at over 5 million dollars and its pea crop at over a million dollars. Imperial growers are able to ship to eastern markets earlier than areas farther north in California. The continuous growing season permits two and sometimes three crops on the same land each year. Early vegetables, such as lettuce or carrots, can be followed by melons, which were also over a 10 million dollar crop in 1944. However, land cannot be planted to vegetables for more than 3 or 4 years in succession; afterwards it is planted in alfalfa or other soil building crops for 3 years before being returned to vegetable production.

Harvesting the crops covered in this report begins at varying times during the winter and early spring. The citrus fruit is first picked in November, lettuce cutting begins often in late December, carrots are pulled and cabbage is cut beginning in January and the spring crop of peas is picked in late February. This year, during the survey week of February 25 to March 3, the lettuce harvest was estimated to be 90 percent complete, cabbage harvest 75 percent citrus fruit 75 percent, peas 40 percent, and carrots 30 percent complete. In no crop, however, had the harvesting work begun to slacken by the time of the survey.

Nearly one-third of the winter cabbage produced for market in 1944 was grown in California, and Imperial Valley had 14 percent of the California acreage of cabbage. The most common method of harvesting cabbage is cutting and sacking; however, if it is to be processed, as was the case for the cabbage on the farms surveyed for this study, harvesting consists of cutting and throwing the cabbage into trailers or trucks moving through the field. Over 100 cabbage harvesters were surveyed out of 250 employed during the survey week, and nearly all were Spanish-American men (table 7).

<sup>1/</sup> Agricultural Extension Service Farm Labor Office reports. In this study, all estimates of the number of workers employed in Imperial County during the survey week are from this source.



Carrots have become one of the most important crops in the Valley. In 1944, California produced over half of the winter carrots in the United States and nearly all of the California winter carrots were produced in Imperial County. In harvesting carrots, a plow is used to turn up the carrots; the workers then sort, bunch and tie them. On some of the farms surveyed, the bunched carrots were packed in crates and on others, they were loaded into lettuce trailers and hauled loose. Bunching and tying carrots and loading are the harvest operations covered in this study. Of the 3,000 workers harvesting carrots in Imperial during the week, 267 were surveyed. Nearly all of these were Spanish-American men, although there were a few Spanish-American women and Filipino men.

Lettuce was the major truck crop surveyed, in terms of the value of the crop. Over half of the 1944 winter lettuce crop in the United States was produced in Imperial Valley. Lettuce for use within the State is dry-packed in the field, while lettuce for shipment out of the State is pitched into a trailer and hauled to a packing shed where the heads are trimmed, graded and packed with ice in crates for shipment. Both methods of harvesting lettuce are covered in this study. In the dry-pack method, harvesting was defined for this survey as cutting and trimming the lettuce, packing it in crates and loading the crates on a truck. The loading includes nailing crates and distributing empty crates. In the ice-pack method, lettuce harvesting has been defined as cutting the lettuce and pitching it into trailers. No packing-shed operations required for ice-pack lettuce were covered for this study, and no truck or tractor drivers were covered for either harvest method. Most of the dry-pack lettuce is shipped from the southern part of the Valley; while ice-pack lettuce is shipped from all parts. Nearly 300 lettuce workers were surveyed out of the 3,000 employed during the week ended March 3, 1945. Of the workers surveyed, 175 were harvesting lettuce to be ice-packed and 117 were harvesting and dry-packing lettuce. Most of the dry-pack workers were Filipinos residing in the immediate area, and most of the ice-pack harvesters were Spanish-Americans. A few Mexican nationals were employed for both harvest methods. All of the lettuce workers surveyed were men.

Grapefruit is the most important fruit crop grown in the Valley. In 1939, Imperial produced over 23 thousand tons of grapefruit, nearly 30 percent of all grapefruit produced in California. Oranges are a much smaller crop. Less than 3 thousand tons of Valencia oranges were produced in 1939 in Imperial, which was nearly 30 percent of all Valencia oranges in California. Most of the citrus fruit is shipped from the southern part of the Valley. Three packing houses in Imperial harvest about 90 percent of the citrus fruit, and a complete enumeration of their workers during the survey week was made for this study. Harvesting of the fruit and preparation for market involves removing the fruit from the trees, grading, and wrapping. The fruit is removed from the trees with scissors and allowed to drop into bags or sacks which hang from the shoulders of the picker. The picker may or may not use a sizing ring to determine the size of fruit to be picked. After picking, the fruit is then graded and wrapped individually in tissue paper and packed in boxes or crates for shipment. Picking the fruit was the only harvest operation covered in this study. Of the 81 workers surveyed, half were Spanish-Americans and the other half were Mexican nationals, other whites and Filipinos. No women pickers were among the workers surveyed.

Peas are a very important crop in Imperial Valley. In 1944, Imperial Valley produced over 50 percent of the early spring peas in the United States. Most of the peas are shipped from the northern part of the Valley. Pea growers reported that harvest conditions for peas were not normal during the survey week, as light rains and strong wind kept some workers out of the fields and interfered with the picking that was done. Therefore, earnings were lower than for a normal week, and



the weekly earnings are not shown. Pea harvesting for this study covers the picking and placing of peas in bushel baskets. Thirty pea pickers were surveyed. The workers were local or migrant white workers, both men and women.

Table 7.—Number and types of workers surveyed harvesting fruit and vegetables, by crops, Imperial County, California, week ended March 3, 1945

Type of worker	: Number	:	:	:	: Lettuce	:	:
	: of	:	:	:	:	:	:
	: workers	: Cabbage:	: Carrots:	:	: Citrus	: Peas	:
	: in	:	:	: Dry	: Ice	: fruit	:
	: survey	:	:	: pack	: pack	:	:
	Number	Number	Number	Number	Number	Number	Number
All workers	777	107	267	117	175	81	30
Spanish-American	514	99	242	10	122	41	-
Male	499	99	227	10	122	41	-
Female	15	-	15	-	-	-	-
Mexican national	115	8	-	26	53	28	-
Male	115	8	-	26	53	28	-
Female	-	-	-	-	-	-	-
Others 1/	148	-	25	81	-	12	30
Male	134	-	25	81	-	12	16
Female	14	-	-	-	-	-	14

1/ Includes 103 Filipinos and 45 white workers.

Some vegetable shippers try to arrange their operations so as to have fairly regular work, and thereby hold their workers. If harvesting crops does not provide full-time work, there are sometimes other jobs such as cleaning ditches and weeding to be done until more harvesting work is available. Nearly half of the workers surveyed were hired on a time basis, which facilitates the shifting from one operation to another. Many of the workers hired by piece rates are employed by a contractor who harvests commodities for several growers or shippers and moves the crews from field to field furnishing the transportation.

Some of the packing houses and some of the crew contractors did not operate every day during the survey week. Much of this irregularity was due to uneven maturing of the crops, and some of it was due to unfavorable weather. In addition, some individual workers did not work on the same farm all days of the week when work was available. This may have been absenteeism or it may have been merely the shift from one job to another during the week. In this study, the wages earned and the time worked by a farm laborer during the week for one particular grower-shipper surveyed are shown. However, the time the average farm laborer worked does not fall below 4.6 days a week and 33 hours worked during the week for any one crop or harvest operation in the study. The carrot harvesters were the largest group of workers who worked a short week for a singler grower-shipper.

WFA has established specific wage ceilings for the harvest of only one of the surveyed crops in Imperial—dry-pack lettuce. However, wage rates for harvesting other vegetable crops surveyed were fairly well standardized, as a result of agreements among most of the growers. Consequently, not much variation in rates was found for each type of operation.



Wage Rates and Earnings

Comparative earnings in harvesting crops surveyed.—Since some of the workers surveyed were paid piece rates and some were paid by the hour, hourly earnings give the best basis for comparing the earnings made in harvesting the selected crops. Hourly earnings are unaffected by varying lengths of work days. The highest average hourly earnings for all harvest operations of any one crop surveyed were 93 cents an hour for harvesting dry-pack lettuce. The lowest were 61 cents an hour for harvesting citrus fruit. This is opposite to the situation in Florida during February–March 1945, where citrus fruit harvesters earned higher hourly earnings than adult male harvesters of the other Florida crops surveyed. 2/ Considering separately each operation in harvesting the crops surveyed, the highest average hourly earnings were made by Filipino workers cutting and packing dry-pack lettuce. They worked at 24 cents a crate and averaged \$1.60 an hour. The next highest average hourly earnings were made by Spanish-Americans cutting and throwing cabbage. They were paid an average of \$3.08 a ton and made an average of \$1.08 an hour. The lowest average hourly earnings were 55 cents an hour made by Spanish-American workers throwing cabbage, and 59 cents an hour, by both Spanish-Americans and Mexican national workers picking grapefruit and oranges.

The highest average weekly earnings for all harvesters of a crop were made by dry-pack lettuce harvesters, who earned nearly \$46 a week. They averaged 49 hours of work per week, which was one of the longest work-weeks for any crop. The lowest weekly earnings were made by carrot harvesters, who earned an average of \$25.50 a week. The carrot harvesters also worked by far the shortest week, averaging only 34 hours. The average citrus fruit picker worked as many hours a week as the average lettuce harvester, but since they had lowest hourly earnings, citrus fruit pickers had next to the lowest average weekly earnings for the selected crops. Filipino workers had the highest weekly earnings for individual harvest operations. Those packing lettuce averaged nearly \$60.00 a week. On the other hand, the lowest weekly earnings were also made at an operation involved in harvesting lettuce; workers pitching lettuce for ice-pack lettuce averaged only \$20.30 a week.

Cabbage.—No specific ceiling rates have been set by the WPA for harvesting cabbage in Imperial Valley. Of the surveyed workers cutting by the hour, the rate ranged only from 60 cents to 65 cents an hour, while the rate paid for throwing ranged from 50 cents to 65 cents an hour (tables 8 and 9). The average hourly earnings for all operations in harvesting cabbage was 87 cents, but there was a wide difference between the average hourly earnings for each of the individual operations involved. Those workers paid by the hour earned an average of 55 cents for throwing, and 61 cents an hour for cutting. On the other hand, the workers cutting cabbage by the ton, and cutting and throwing by the ton, earned an average of 96 cents and \$1.08 an hour, respectively. In addition to the higher hourly earnings, the piece rate workers also worked more hours during the week, so that they averaged weekly earnings of \$50 a week, more than twice the weekly earnings of cabbage harvesters paid by the hour. Nearly all the cabbage workers surveyed were Spanish-American men. No performance data are available for cabbage harvesters paid by the hour, but cutters who were paid by the ton averaged 4 tons a day or nearly a half of a ton an hour (table 10). Those who cut and threw cabbage, and were paid by the ton, averaged 3 tons a day, or a little more than a third of a ton an hour.

Carrots. By agreement among the shippers, the wage rate to be paid for bunching and tying 3 dozen bunches of carrots has been established in the area. All of the 255 surveyed workers bunching and tying carrots were paid at the rate of 21

2/ Survey of Wages and Wage Rates in Agriculture, Report No. 1, "Wages and Wage Rates of Seasonal Farm Workers in Special Crop Areas of Florida, Feb.–March, 1945," Washington, D. C., May 1945.



cents for 3 dozen bunches. No specific wage ceiling has been established by WFA in the area. The 12 workers in the survey who loaded carrots were paid by the hour at an average rate of 89 cents. Their hourly earnings were higher than the workers bunching and tying carrots, who averaged 75 cents an hour. Loaders also worked much longer hours so that their weekly earnings averaged nearly \$43 a week; workers bunching and tying carrots averaged only \$25 a week.

Most of the surveyed workers bunching and tying carrots were Spanish-Americans, but 22 were Filipinos. Although they were all paid at piece rates, the Filipinos averaged \$1.01 an hour, while the Spanish-Americans averaged 72 cents an hour. The Filipinos averaged nearly 5 three-dozen bunches of carrots an hour, while the Spanish-Americans averaged about  $3\frac{1}{2}$  three-dozen bunches an hour. Since the Filipinos also worked an average of 6 hours more a week, their average weekly earnings were nearly \$38, while the Spanish-Americans averaged \$23.50. Carrot harvesters averaged 4.9 days a week on the surveyed farms, and worked among the shortest hours a week of the workers harvesting the selected crops.

Citrus fruit.—WFA has not set a wage ceiling for picking either grapefruit or oranges in Imperial Valley. All of the workers in Imperial Valley picking oranges during the survey week were paid at 12 cents a box. Only one of the three citrus fruit packing houses in the Valley was picking oranges at the time of the study. Wage rates paid grapefruit pickers varied among the three important packing houses. Some, who were also picking oranges, were paid at 7 cents a box for picking grapefruit. Some of the workers picking only grapefruit were paid 50 cents an hour, while others were paid 70 cents an hour. Grapefruit pickers worked an average of 49 hours a week, and averaged weekly earnings of \$30.40. No Filipino workers were picking citrus fruit during the survey week.

All of the workers picking both grapefruit and oranges during the survey week were paid the same rate, yet the Spanish-Americans worked an average of a half a day more during the week than the Mexican national workers. The weekly earnings of these Spanish-Americans workers averaged \$30.80, which was \$4 a week more than was earned by Mexican nationals doing the same type of work.

Lettuce.—WFA has not set a ceiling rate for harvesting ice-pack lettuce in California, but it has set a ceiling of 27 cents per standard crate of dry-pack lettuce. The surveyed workers harvesting dry-pack lettuce who were paid by the crate were paid 24 cents for cutting and packing, or 3 cents less than the ceiling. There was only a small difference in the hourly rate paid ice-pack lettuce harvesters included in the survey. Most of the surveyed workers cutting lettuce for ice-packing were paid 65 cents an hour but a few were paid 60 cents an hour. Most of those pitching were paid 60 cents an hour, although a few were paid 65 cents an hour. About two-thirds of the workers cutting and pitching were paid 65 cents an hour and one-third were paid 70 cents an hour.

The 5-cent differences in the hourly rate paid cutters seems to be related to the type of worker. All of the Spanish-American cutters were paid 65 cents an hour; while nearly all of the Mexican national cutters were paid 60 cents an hour. Many of the imported Mexican nationals are not experienced lettuce cutters and are being paid an apprentice rate, which is slightly lower than that paid experienced cutters. Also, Mexican nationals worked a very short week. They worked an average of only 3.3 days and 27 hours a week, so that their weekly earnings averaged under \$17 for the week on the surveyed farms. On the other hand, the type of workers does not seem to be related to the difference in the wage rate paid workers doing



Table 8.—Average wage rates, time worked, and cash wages earned by workers surveyed harvesting fruit and vegetables, Imperial County, California, week ended March 3, 1945

Crop and type of operation	: Number :	:	Rate	:	Time worked on		:	Cash wages earned	
	: of :	:		:	: reporting crew		:	: on reporting crew	
	: workers:	:		:	: Hours : Days : Hours :	:	:	:	:
	: in :	: Amount: Unit	:	: per : per : per :	:	: Hourly: Daily : Weekly :	:	:	:
	: survey :	:	:	: day : week : week :	:	:	:	:	:
	Number	Dollars		Number	Number	Dollars	Dollars	Dollars	Dollars
Cabbage	107	-		7.9	5.7	.87	6.80	39.10	
Cut by hour	22	.61	hour	7.3	5.5	.61	4.50	24.60	
Cut by ton	10	2.13	ton	8.7	7.0	.96	8.40	58.60	
Throw	24	.55	hour	7.1	6.0	.55	3.90	23.40	
Cut and throw	51	3.08	ton	8.3	5.5	1.08	9.00	48.90	
Carrots	267	-		6.8	4.9	.76	5.20	25.50	
Bunch and tie	255	.21	3 dozen bunches	6.7	4.9	.75	5.00	24.70	
Load	12	.89	hour	8.3	5.8	.89	7.40	42.90	
Citrus fruit	81	-		8.9	5.5	.61	5.50	30.00	
Pick grapefruit	44	.63	hour	8.7	5.5	.63	5.50	30.40	
Pick grapefruit and oranges and other work 1/	37	-		9.2	5.4	.59	5.50	29.40	
Lettuce, dry pack	117	-		8.1	6.1	.93	7.60	45.80	
Cut 2/	48	.68	hour	8.3	6.6	.68	5.70	37.60	
Pack	11	.10	crate	9.4	7.0	.91	8.60	59.80	
Cut and pack	40	.24	crate	6.8	5.0	1.60	10.90	54.30	
Other operations 3/	18	-		9.0	6.2	.72	6.50	40.20	
Lettuce, ice pack	175	.65	hour	8.9	5.4	.65	5.80	31.30	
Cut	65	.64	hour	7.3	4.7	.64	4.70	22.20	
Pitch	36	.62	hour	7.2	4.6	.62	4.40	20.30	
Cut and pitch	74	.66	hour	10.4	6.5	.66	6.90	44.60	
Peas, pick	30	.025	pound	7.4	4/	.64	4.72	4/	
1/ Workers during one day pick grapefruit at \$0.07 a box and oranges at \$0.12 a box and perform other work at \$0.12 a box and									



Table 9.--Average wage rates, time worked, and cash wages earned by workers surveyed, by type of worker  
for specified harvest operations, Imperial County, California, week ended March 3, 1945

Type of operation and type of worker	:Number:	Rate	Time worked on				Cash wage earned			
	: of :	:	: reporting crew :				: on reporting crew :			
	: workers:	:	Hours :	Days :	Hours :	:	: Hourly :	: Daily :	: Weekly :	
	: in :	Amount: Unit :	: per :	: per :	: per :	:	: Hourly :	: Daily :	: Weekly :	
	: survey :	:	: day :	: week :	: week :	:	:	:	:	
	Number	Dollars	Number	Number	Number	Number	Dollars	Dollars	Dollars	
Carrots										
Bunch and tie	255	.21	3 doz.	bunches	6.7	4.9	33	.75	5.00	24.70
Spanish-Americans	233	.21	3 doz.	bunches	6.5	5.0	32	.72	4.70	23.50
Others 1/	22	.21	3 doz.	bunches	9.0	4.2	38	1.01	9.00	37.90
Citrus fruit										
Pick grapefruit and oranges										
and other work 2/										
Spanish-Americans	37	-	-		9.2	5.4	50	.59	5.50	29.40
Mexican nationals	12	-	-		9.3	5.5	51	.60	5.60	30.80
	13	-	-		9.2	5.1	47	.58	5.30	26.90
Lettuce - dry pack										
Cut 1/	48	.68	hour	8.3	6.6		55	.68	5.70	37.60
Mexican nationals	26	.60	hour	7.2	6.0		46	.60	4.30	27.60
Others 1/	22	.75	hour	9.4	7.0		66	.75	7.10	50.00
Lettuce - ice pack										
Cut	65	.64	hour	7.3	4.7		34	.64	4.70	22.20
Spanish-Americans	54	.65	hour	7.2	5.0		36	.65	4.70	23.30
Mexican nationals	11	.61	hour	8.3	3.3		27	.61	5.10	16.60
Cut and pitch	74	.66	hour	10.4	6.5		68	.66	6.90	44.60
Spanish-Americans	36	.66	hour	10.5	5.9		62	.66	6.90	40.90
Mexican nationals	38	.66	hour	10.4	7.0		73	.66	6.90	48.20

1/ Others include Filipinos and white workers.

2/ Workers during one day pick grapefruit at \$0.07 per box and oranges at \$0.12 per box and perform other work at \$0.25 an hour.

3/ Includes some trimming.



both cutting and pitching. However, Mexican nationals who were cutting and pitching averaged slightly longer hours worked during the week, so that their weekly earnings averaged \$48.20 or \$7 more than the Spanish-Americans cutting and pitching. All of the surveyed workers pitching lettuce as a single operation were Spanish-Americans. They averaged the lowest rate per hour, the shortest hours worked and the lowest weekly earnings of the three harvest operations in ice-pack lettuce. Their weekly earnings averaged only \$20.30 a week.

The only performance data available for harvesting lettuce is that of 40 Filipino men cutting and packing dry-pack lettuce. They averaged 45 crates a day, or 6.6 crates an hour. They were paid at 24 cents a crate, and averaged \$1.60 an hour, and \$10.90 a day, the highest hourly and daily earnings made in harvesting lettuce, either dry-pack or ice-pack. These Filipinos cutting and packing worked an average of only 34 hours a week, so that their weekly earnings were not quite as high as the Filipinos packing lettuce at 10 cents a crate. The packers averaged weekly earnings of nearly \$60 a week, the highest average weekly earnings made in any lettuce harvest operations.

Peas. WFA has not set a specific ceiling rate for picking fresh market peas in Imperial Valley. The 30 workers included in the survey were employed by two grower-shippers and were all paid at the rate of 2½ cents a pound. Pea pickers averaged 64 cents an hour; male pickers earned an average of 76 cents an hour and females 51 cents an hour. The average picker earned \$4.70 a day. Since rain and high winds during the survey week interfered with the pea harvest, no weekly data are presented. In spite of the weather, the average worker picked 189 pounds, or over 6 bushels of peas per day, and 26 pounds or nearly a bushel an hour.

Table 10.—Average wage rates and performance of piece rate workers surveyed harvesting cabbage, carrots, dry-pack lettuce, and peas, Imperial County, California, week ended March 3, 1945

Type of operation and type of worker	: Number : of : workers in : survey	: : : :	Rate		: : : :	Performance	
			: Amount	: Unit		: Units : per hour	: Units : per day
Cabbage							
Cut	10		2.13	ton		.45	3.9
Cut and throw	51		3.08	ton		.35	2.9
Carrots							
Bunch and tie	255		.21	3 dozen		3.6	24
				bunches			
Spanish-Americans	233		.21	3 dozen		3.4	22
				bunches			
Others 1/	22		.21	3 dozen		4.9	44
				bunches			
Lettuce, dry-pack							
Cut and pack	40		.24	crate		6.6	45
Peas							
Pick	30		.025	pound		25.7	189

1/ Others include Filipinos and white workers.



Distribution of earnings.—Nearly 70 percent of the workers harvesting dry-pack lettuce earned over \$7.00 a day and over 70 cents an hour. Of the surveyed crops, dry-pack lettuce had by far the highest proportion of workers with average earnings over \$7.00 a day. Over 40 percent of the cabbage harvesters earned from \$5.00 to \$6.99 a day, and over half earned from 60 to 69 cents an hour. Over half of the carrot workers also earned from 60 to 69 cents an hour, but 60 percent had daily earnings under \$5.00. None of the citrus fruit pickers made more than \$7.00 a day, and most of them earned from \$5.00 to \$6.99 a day. None of the ice-pack lettuce harvesters surveyed earned less than 59 cents an hour, but over half of them had daily earnings of less than \$5.00. Nearly half of the pea pickers surveyed earned less than 59 cents an hour and more than half earned less than \$5.00 a day; none of them earned over \$7.00 a day.

Table 11.—Distribution of workers surveyed harvesting fruit and vegetables, by hourly and daily earnings, in Imperial County, California, week ended March 3, 1945

Crop	: Number : Distribution of workers by				: Distribution of workers		
	: of :		: hourly earnings		: by daily earnings		
	: workers:	59 cents :	70 cents :	\$4.99 :	\$7.00		
	: in :	and :	60 - 69 :	and :	\$5.00- :	and	
	: survey :	under :	cents :	over :	under :	\$6.99 :	over
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Cabbage	107	17	55	28	29	43	28
Carrots	267	7	60	33	60	21	19
Citrus	81	34	30	36	19	81	-
Lettuce, dry pack	117	-	31	69	22	9	69
Lettuce, ice pack	175	-	88	12	54	16	30
Peas	30	47	20	33	67	33	-

#### Method of Survey

Wage data for persons engaged in the harvest of cabbage, carrots, ice-pack lettuce, dry-pack lettuce, and peas in the Imperial Valley were obtained through a sample of shippers of the commodities. Of the 61 shippers or grower-shippers of vegetables, 53 were found to be "active" i.e. likely to be harvesting one or more of the specified crops during the enumeration week. Most of them were handling at least two of the crops, so that separate sampling for each crop was not feasible. On the basis of information from the Market News Service, these operators were classified into large, medium and small groups, according to the relative amount of field harvest labor which it was expected that they would employ during the enumeration week. A roughly self-weighted ten percent sample, stratified to obtain representation of each of the four vegetables, was designed as follows.

In the large group, consisting of seven operators, all operators were included in the sample; approximately one-tenth of the workers within each of these firms were selected for the sub-sample. The medium group, consisting of 22 operators, was subdivided into commodity groups, depending on the most important commodity being harvested by each. Every second firm was selected from each sub-group as listed in



alphabetical order, with those not selected being retained as alternates. Approximately one-fifth of the workers within each of these medium-sized firms were selected for the sub-sample. The small group, consisting of 24 operators, was stratified in the same manner as the medium group and every fifth firm included in the sample and one alternate for each selected firm, one-half the workers within each were sub-sampled.

Because of the great variation in crew size, the sampling rates were varied in order to get an adequate sample or to avoid requesting an excessively large amount of data where no payroll records were available. Thus if crews had less than twenty members, all members were included rather than sampled; where crews were extremely large and data were not easily obtainable, the rate was reduced from 50 percent for small firms or from 20 percent for medium firms to about 10 percent.

Wage data were obtained for citrus fruit pickers employed by the three citrus packing houses in Imperial Valley, which harvested 90 percent of the citrus fruit in the Valley. A complete enumeration of the pickers employed by them was made.



